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Evaluating the Use of the Wilbarger Intervention with Schizophrenic Patients: *A Pilot Study*

ABSTRACT

Individuals with schizophrenia have difficulty processing sensory information. The authors hypothesized that the Wilbarger intervention, an occupational therapy technique successfully used to treat children with sensory integration deficits, might prove beneficial if used with schizophrenic patients. Thirty inpatients diagnosed with schizophrenia or schizoaffective disorders voluntarily participated. Each was evaluated using the sensory integration subscale of the Neurological Evaluation Scale (NES) both pre- and post-intervention. The Wilbarger was scheduled to be administered five times per day for seven days per week for four weeks. Participants averaged 19.5 days (mean) in the study (median=27.5 days) and received 80.4 (mean) (106.5 median) interventions. Those receiving 90 or more interventions improved significantly on the graphesthesia subtest ($t(28)=2.498$; $p<0.019$), the right/left confusion subtest ($t(28)=2.373$; $p<0.025$) and the post-total score ($t(28)=2.184$; $p<0.037$). Sensory subscales of the NES statistically improved after use of the Wilbarger intervention. Further studies are planned to determine the duration and clinical significance of the noted changes.



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INTRODUCTION

The field of occupational therapy has conceptualized certain disruptive behaviors and learning disabilities in children to be due to an inability to integrate sensory input.¹ Interventions designed to correct the “sensory integration deficits” were developed over the years and a meta-analysis of the research evaluating these interventions found that the earlier studies showed significant effects.^{2,3}

The Wilbarger intervention consists of a brushing of the back, arms and legs and a push-pull motion of the joints of the wrists, elbows, shoulders, knees and ankles.⁴ It was this procedure that was used in this study.

METHOD

A multidisciplinary team (comprising nursing, psychology, psychiatry, and occupational therapy) along with a psychology student were trained in the Wilbarger technique by the occupational therapist. Inpatients at a state psychiatric hospital who were diagnosed as having schizophrenia or schizoaffective disorders by West Virginia University School of Medicine Psychiatry faculty were invited to participate in the study. After complete description of the study to the subjects, written informed consent was obtained. Thirty patients participated (19 men; 11 women). The sensory integration subscale of the NES⁵ was administered to

each before and within 24 hours of the conclusion of the study. Patients were scheduled to receive the Wilbarger intervention for four weeks, five times per day, for seven days per week. They could refuse any single intervention or drop out of the study at any time.

RESULTS

Study participants averaged 19.5 (mean) days in the study (median 27.5 days) and received 80.4 (mean) interventions (median 106.5).

The sample used in the current study was initially compared to the schizophrenic subjects used by Buchanan and Heinrichs⁵ in norming the NES sensory integration subscale. Independent samples T-tests were run. No significant difference was found in comparing the mean total scores of the Buchanan and Heinrichs sample and the pre-intervention mean total scores of those used in this study ($t(79)=1.38$; $p<0.16$). In comparing the post-intervention mean total scores of this study's participants with their pre-interventions mean total scores using a paired T-test, a significant difference was found ($t(29)=6.97$; $p<0.000$), suggesting improvement in sensory integration with intervention.

Pearson product-moment correlation coefficients were computed to assess the strength of the relationship between the number of Wilbarger treatments

given and the pre-intervention scores on the sensory integration subscale of the NES. The correlation between these two variables was not significant ($r=-0.178$; $p<0.347$). In contrast, in comparing the relationship between the number of Wilbarger treatments given and the scores of the post-interventions on the sensory integration subscale of the NES, a significant relationship was found ($r=-0.529$; $p<0.003$). The correlation between change in the individual participant's pre- and post-intervention scores and the number of Wilbarger treatments given was also completed. It fell short of significance, though suggested the same directionality as found above ($r=-0.352$; $p<0.056$).

For analysis purposes, in order to further assess the change based on number of Wilbarger treatments given, the subject pool was divided into two relatively equal groups. One group of 16 had more than 90 (>90) treatments ($M=120.50$; $S.D.=9.55$); a second group of 14 had less than 90 (<90) treatments ($M=34.57$; $S.D.=29.49$). The magnitude of change after the treatments on each of the five subtests and the total scale score of the sensory integration component of the NES was approximately double that for the >90 group, as compared to the change for the <90 group.

To further assess the differences between the two groups, independent samples T-test results compared the pre-intervention mean scores for each of the five subtests and the total score of the sensory integration component of the NES. There were no significant differences between any of the five subtests or the pre-intervention total score. In contrast, as can be seen in Table 1, the post-intervention independent sample T-tests reflect several areas of

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superior improvement in the >90 intervention group. The T-tests suggest the greater number of interventions significantly improved performance on the graphesthesia subtest ($t(28)=2.498$; $p<0.019$), the right/left confusion subtest ($t(28)=2.373$; $p<0.025$), and the post-total score ($t(28)=2.184$; $p<0.037$). Gender differences were assessed using independent sample T-tests on the five post intervention scale scores and the post-total score. No significant differences were found.

DISCUSSION

Although sensory-motor interventions have previously been utilized with schizophrenic patients^{6,7} the authors are unaware of any study that quantitatively shows a significant improvement in neurological function, (i.e., improved sensory integration) following use of an intervention, as is the case in this study.

However, several questions can be raised concerning these positive findings. Are the improved sensory integration figures due to the brushing, the joint manipulation, both interventions together or to the increased interpersonal contact (up to five times a day, seven days per week) that the participants had with the research team member who was applying the Wilbarger intervention? There is also literature that suggests touch has a therapeutic effect, and the Wilbarger procedure is a hands-on technique.

It is unlikely that the antipsychotic medications could account for the positive findings. Previous studies have shown that neither clozapine nor haloperidol affect the NES or its subscales.⁸ Bias must also be a consideration.

This pilot study also raises the question of clinical significance. We do not know how long

TABLE 1. Independent samples T-test results comparing the post-intervention mean scores of the greater than 90 intervention group and the less than 90 intervention group

SUBSCALE	T SCORE	SIGNIFICANCE
Tapping Sound Scale (TS)	1.072	0.293
Identifying Object Scale (IO)	0.915	0.368
Graphesthesia (GE)	2.498	0.019*
Extinction (Ex)	0.701	0.489
Right/Left Confusion (RLC)	2.373	0.025*
Post-Intervention Totals	2.184	0.037*
* Significant Greater than 90 Group, $n = 16$ Less than 90 Group, $n = 14$		

the sensory integration changes last nor what clinical effects (if any) they have on symptoms or behaviors. Studies are currently being designed to address these questions.

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